Human Impact On Beaches

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Abstract:

Three major part of the beach humans have impacted the most are pollution levels, marine life, and erosion rates. Waste and debris on the beaches have increased due to more tourists. Many swimmers become ill after swimming in the ocean due to runoff sewage. Human activities have disrupted animals and their way of living on the beach. Animals of all sizes are affected by human activities. Constructions on beaches have caused an increase in erosion. Jetties and seawalls are the two major types of constructions that have affected the beaches the most.

"On Oahu, Hawaii, 30 percent of the island's sandy beaches have disappeared because of sea walls" (Bush, Neal, and All, 2004, p. 98). In various ways, humans have attempted to improve conditions on the beaches and have affected them tremendously. Human interference has affected pollution levels marine life, and erosion rates, which in turn has altered the normal routine of beaches. Beach life is changing, as human impact continues.

Human has polluted Beaches since the start of the human impact. Even though some beach pollutants occur naturally like sargassum, most of its debris comes from human contact (What, p.1). At some beaches, the ocean water is now required to be tested before any swimming is permitted. In 1995, 4000 beaches were required to test the safety of the water for swimming reasons (Beach Pollution, p. 1). The primary source of water pollution is from sewage. Drainage from sewage pipelines creates a toxic environment to swim in. Excessive waste accumulates and overflows into the ocean therefore making the water too toxic to swim. The majority of the waste overflowing in the ocean water is untreated or poorly treated waste. The untreated waste exposes human

to more bacteria and viruses creating major health risk issues (Beach Pollution, p.1). Many of these health risk symptoms of illness may seem normal: coughing, vomiting, diarrhea, headache, and fever. Normally most cases are minor illness and require little to even possibly no medical care. Another sort of pollution human leave on beaches is their litters. Approximately 90 percent of floating debris in the ocean is plastic (Beach Trash, p.1). Plastic can be recycled to make bottles, cloth, or even furniture. The abundant amount of plastic in the ocean could be recycled to keep the ocean a much more sanitary environment. Plastic can take up to 10-400 years to decompose depending on size and material (Beach Debris, p. 8). The long process allows more debris to accumulate into more serious dilemma. Frequently glass is found on the sandy shores of the beaches. Broken glass hidden in the sand can cut someone who is not aware of it. Glass can also be recycled into new glass or asphalt. Glass takes up to 1 million years to decompose in the sand (Beach Debris, p. 8). In the time-consuming time glass has a higher possibility to cut someone. Along the beaches, unwanted papers are left to decay slowly on the sand. Clean beaches with no debris are an ideal location to vacation for anyone. "I will not want to go to the beach, because no one wants to be at a polluted area. It is just not enjoyable" (Song). Trash and debris drives off tourist from the beautiful scene, but also tourist leave behind trash such as: cups, straws, bottles, cans, and cigarettes. The most abundant trash on beaches is cigarettes. One single cigarette filter acquires about 1-5 years to decompose in the sands. The ideal concept of beaches cannot be maintained due to ignorant human activities leaving their unwanted trash stranded on the beach. Pollution and debris drives away humans and destroys the outlook of the beaches.

Recycling would decrease the amount of waste on the beaches and keep the water safe for swimming.

Marine life is highly susceptible to human impacts. Even small amounts of human interference have a huge impact on marine life. As an example, sand castles can have an impact on marine life. Sand castle may interfere with wary loggerhead turtles when they crawl onto the beach surface to lay their eggs causing the loggerheads to return back to the sea (Reduce, p. 1). Some loggerheads may even drop their eggs into the ocean decreasing the chance of survival to nearly impossible. "Less than 1 in every 1000 eggs is thought to produce hatchlings that will survive to reproduction" (Reduce, p. 1). Another concern for Loggerhead turtles is the low birth rates are due to human impact. Limiting human impact to the lowest amount possible would result in higher birth rates and survivals for the turtle eggs. Removing sand castles and other debris that may block the loggerheads' path to their nesting destination will contribute to a higher birth rate. Any sort of vehicles traveling along the beach can destroy nests and damage eggs. Vehicle not only can affect turtles but also birds and crabs. "A recent study on beaches in South-East Queensland showed that beaches open to 4WD vehicles have substantially fewer species of invertebrates and these occur at much reduced densities" (Human, p. 2). Limiting vehicles on beaches to emergency vehicles only will provide a safer environment for marine life. Another concern for beach inhabitants are mechanical sweepers. Mechanical sweepers are big tractors used to sweep and clean the surface of the beaches to provide a better appearance for the beaches. The machines are heavy enough to overwhelm and crush both near sand surface organism and deep-living invertebrates. Mechanical sweepers also destroy wrack, which is the buildup of debris

made up of seaweeds, organisms, and materials washed ashore by the tides (Human, p. 1). Wrack provides food and shelter for numerous animals on the beach. Damaged homes and scarce food supply eventually leads to a less diverse environment. The mechanical sweepers also cause turbidity, which is a stress-or of marine life. Turbidity is the measurement of clarity of the water. Without sunlight plants are unable to grow and feed themselves. Gradually the sand settles onto the plant, which is known as sedimentation. Sedimentation is the direct burial of sand onto underwater plants (Bush, Neal, and All, 2004, p. 104). Sunlight is still blocked out by the sand and plants and marine life will still struggle for food.

Erosion is the largest conflict dealing with the beaches. Human impact has shown a decline in size of the beaches. England beaches started to erode away in 1894 as people started building houses on the beaches (Goudie, 2000, p. 313). Within a ten-year period photograph proves that the beach had shrunk 10 feet quickly and shockingly. Each year recreational needs increase causing accelerated deterioration, and destruction of vegetation on dunes (Goudie, 2000, p. 312). Walking on sand dunes is now illegal on every beach. Sand dunes help to decrease erosion on the beaches. Beach plants grow in the sand dunes with roots that grow up to 20 feet deep into the sand. The roots allows the plant to hold and maintain its grip in the sand therefore the wind cannot easily blow it away. The plant is now able to catch sand in the wind to lower the mobility of the sand. The most vital aspect of the plant is its ability to regrow after its upper part has been torn off by the wind due to its roots. Walking on sand dunes is lethal to the sensitive plants. Even the digging of dunes is hazardous to the plants. Beach laws protect the sand dunes from being interfered with such as walking or digging the sand dunes. Often, to protect

their property from overpowering storms man will use bulldozers to build artificial sand dunes. Normally the artificial dunes do not last long and have a tendency to flood and break. "Frequently coastal erosion has been accelerated as a result of human efforts to reduce it" (Goudie, 2000, p. 311). Plants transfer is a typical answer to stop erosion because plants increase amount and size of dunes. An area with lots of vegetation holds up to stronger winds and will endures over a longer period of time than areas with little vegetation. In an effort to protect properties from dangerous storms many public beaches have built sea walls and jetties. A disadvantage of sea walls is that they increase sediment movement causing the shrinking of the beaches. Most beaches in California have disappeared because of sea walls (Bush, Neal, and All, 2004, p. 98). Human constructions projects have all had a negative impact on the beaches resulting in low amounts of sand. "The piecemeal emplacement of expensive sea walls and cliff protection structures is often have only of short-term effectiveness and can cause accelerated erosion downdrift" (Goudie, 2000, p. 314). The building of dams and multiple types of protections from storms have accelerated the speed of erosion. Sea walls have been proven to be extremely expensive to the public beach because of the constant trucking of sand onto the beach. The sand above sea awall is normally safe, but the sand underneath is washed away as years past. Further down the beach sand will also wash away. Fort Fisher, North Carolina erosion is clearly noticeable along the beaches. Along the beach sand seem to disappear and the beach seems small even during low tides. Each rock of the man made sea wall weights approximately 2000 pounds and had to be brought in and laid in pace. This time consuming process is expensive and is only

relatively useful for a short amount of time. The short useful time compared to the years of erosions will prove that the sea walls are not worth constructing.

Human impact on the beaches is more severe than people may know. Human interferences have impacted the pollution levels, marine life, and erosion rates. Increase in recreational have left human waste and debris on the beaches have made them filthy. Mechanical sweepers and various human activities have disrupted marine life affecting both small and large animals. Sea walls and numerous human constructions increase the erosion rates and shape of each beach. Even small human interferences can result in big changes on the beach and its surroundings.

Works Cited

"Beach Debris." *Trecpi*. Web. 14 July 2010. <http://www.trecpi.org/pdfs/BeachDebris%20pb2000.pdf>.

"Beach Debris." *Utmsi*. Web. 14 July 2010. <http://www.utmsi.utexas.edu/beach_debris/content/02-debris.html>.

"Beach Pollution." *U.S. Environmental Protection Agency*. 01 Dec. 2006. Web. 13 July 2010. <http://www.epa.gov/beaches/learn/pollution.html>.

“Beach Trash & Debris." *30-Minute Beach Cleanup*. Web. 13 July 2010. <http://www.beachcleanup.org/trash.html>.

Bush, David M., William J. Neal, Norma J. Longo, Kenyon C. Lindeman, Deborah F. Pilkey, Luciana S. Esteves, John D. Congleton, and Orrin H. Pikley. *Living with Florida's Atlantic Beaches*. Duke UP, 2004. Print.

Goudie, Andrew. *The Human Impact on the Natural Environment*. Great Brittian: MIT Edition, 2000. Print.

“Reduce Human Impact on Sea Turtles." Katelios Group. Web. 12 July 2010. <http://www.kateliosgroup.org/decalogue.htm>.

Song, David. "Beach Pollution." Personal interview. 14 July 2010.

"Utmsi." *What Is Beach Debris*. Web. 14 July 2010. <http://www.utmsi.utexas.edu/beach_debris/content/02-debris.html>.